

REMARKS

I. INTRODUCTORY REMARKS

The Applicants thank the Examiner for the careful consideration of this application. The Office Action dated September 11, 2008 has been received and its contents carefully considered. Claims 1-13 are currently amended. Claims 14-15 have been added. Thus, claims 1-15 are currently pending in this application. Based on the foregoing amendments and the following remarks, the Applicants respectfully request that the Examiner reconsider all outstanding rejections and that they be withdrawn.

II. CLAIM REJECTIONS UNDER 35 U.S.C. § 103(A)

On page 2 of the Office Action, Claims 1-5 and 7-13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,428,173 to Knell in view of U.S. Patent No. 4,016,688 to Tiffin et al. On page 4 of the Office Action, Claim 6 is rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. U.S. Patent No. 4,428,173 to Knell in view of U.S. Patent No. 4,016,688 to Tiffin et al. and in further view of U.S. Patent No. 4,337,601 to Vaerk et al. Based on the foregoing amendments and the following remarks, the Applicants respectfully request that the Examiner reconsider all outstanding rejections and that they be withdrawn.

Claim 1 recites a welded profile for fitting a digger with a backhoe bucket or a loading shovel. The welded profile includes upper and lower flanges, sidewalls operatively connected to the upper flange and lower flange, and upper and lower corner regions, having reinforced profiles, between the upper flange and the sidewalls and between the lower flange and the sidewalls. The corner regions are formed with separate sheet metal sheets that are

welded to the respective sidewalls. The sidewalls have a thinner cross-section than the corner regions and include positioning locations for cylinder attachment points.

It is an object of the present invention to modify a welded profile which is used for attaching a loading shovel and a backhoe bucket in such a way that it results in a reduction of stresses in highly stressed local regions. The present invention is intended to shift the welding seams to regions with lower stresses, to prevent welding seam failure and to result in an overall increased service life of the components. *See Specification [0008]*.

The Action concedes that Knell does not disclose “end regions with a reinforced profile which form the corner regions of the upper flange and the lower flange.” Tiffin, likewise, does not teach a welded profile related to a digger that includes reinforced end or corner regions to prevent welding seam failure. Rather, Tiffin discloses an extensible cantilever boom assembly for a mobile crane that stiffens side plates by incorporating shaped portions within the plates to resist buckling.

Boom profiles of excavators do not encounter the same or similar problems as boom profiles of cranes. Excavators, for example hydraulic diggers, are used for digging in mining operations. Machinery of this type is used in extremely difficult terrain, thus causing welding seam failure to become a very costly factor since any damages will render the digger unavailable for a long period of time. *See Specification [00012]*. Thus, the welding seams of the boom profiles of excavators must resist high amounts of torsion and stress during digging operation.

Unlike excavators, cranes carry loads. Crane booms are designed to support both a load being lifted, as well as the weight of the boom itself. When the boom assembly is extensible and mounted as a cantilever, greater stresses are developed in the boom sections.

Tiffin focuses on web or side-plates designed to resist buckling under such a concentrated loading. *See Tiffin, Col. 1: 10-25*. In the boom of a crane, a uniform bending load is present. The “angle chords 28-31” disclosed in Tiffin are designed to accommodate this bending load to prevent buckling and can only sustain small subjects of torsion.

Thus, the issue addressed in the present invention is prevention of failure of the welding seams connecting the boom elements, *not* the prevention of buckling as is addressed in Tiffin. The present invention adds reinforced corner regions in order to move the welding seams away from cylinder attachment points, in order to protect the integrity of the welding seams during excavation. Further, the present invention integrates cylinder attachment points into the reinforced corner regions so that all previously existing welding seams in the prior art can be omitted. *See Specification [00015]*.

The “angle chords 28-31” disclosed in Tiffin are not applicable to the profile of a boom of an excavator for use in mining, because there is no corresponding buckling problem in the boom of an excavator as shown in Knell. It is respectfully submitted, that such a combination of teachings from Tiffin as proposed in the Examiner’s Action constitutes a picking and choosing of disparate elements from separate references and combining them in the manner which could only be based on Applicants’ own disclosure. *See In re Arkley*, 455 F.2d 586 (C.C.P.A. 1972) (“the reference ... must clearly and unequivocally disclose the claimed compound or direct those skilled in the art to the compound without any need for picking, choosing, and combining various disclosures not directly related to each other by the teachings of the cited reference.”). One skilled in the art would not look to Tiffin to solve a

problem that does not exist in the boom profile of a crane. There is no other reason of record to support Examiner's use of Tiffin.

Therefore, it would not be obvious to one having ordinary skill in the art at the time the invention was made to incorporate the Tiffin design in the Knell boom to prevent welding seam failure in the boom profile of an excavator. For these reasons claim 1 is allowable under §103(a) over Knell in view of Tiffin. Claims 2-10 and 15 depend from independent claim 1, which, as demonstrated above, is patentable over Knell and Tiffin for at least the same foregoing reasons.

In addition, dependent claims 4-8 disclose corner regions that include reducing cross-sectional areas. The reducing cross-sectional areas reduce the thickness of the corner portion down to the thickness of the sidewall. Furthermore, the reducing cross-sectional area allows the corner region to sit flush at the connection with a sidewall, upper flange or lower flange to further strengthen the welding seam. This concept is not disclosed in Tiffin, whose "angle chords 28-31," although thicker than the sidewalls, use flanges to weld at connection points in overlapping or underlapping relationships. *Tiffin, Fig. 2; Col. 3: 33-35*. Again, it would not be obvious to one having ordinary skill in the art at the time the invention was made to incorporate the Tiffin design in the Knell boom to prevent welding seam failure in the boom profile of an excavator.

With respect to claim 11, the recited method parallels the apparatus recited in claim 1, and therefore, claim 11 is patentable for at least the same reasons as were discussed above with regard to claim 1. Claims 12-14 depend from independent claim 11 and are patentable for at least the same reasons. Therefore, the withdrawal of these rejections is respectfully requested.

CONCLUSION

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants, therefore, respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is hereby invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment is respectfully requested.

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Respectfully submitted,

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